Assessment and Comparison of Varied Emotional and Physical Variables of Selected National Level Basketball and Handball Achievers and Non Achievers

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A

Synopsis

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TABLE OF CONTENTS

CHAPTER		PAGE NO.
I	**INTRODUCTION**	**1-8**
	Statement of the Problem	4
	Objectives of the Study	4
	Hypothesis	5
	Delimitations	5-6
	Limitations	6
	Definition and Explanation of the Term	6-7
	Significance of the Study	7-8
II	**REVIEW OF RELATED LITERATURE**	**9-11**
III	**METHODOLOGY**	**12-14**
	Selection of Subjects	12
	Selection of Variables	12
	Procedure for data Collection	13
	Statistical Techniques	13
	Expected Outcome	14
IV	**BIBLIOGRAPHY**	**15-19**

Certificate

I hereby declare that the short synopsis "Assessment and Comparison of Varied Emotional and Physical Variables of Selected National Level Basketball and Handball Achievers and Non-Achievers" being submitted for the degree of Doctor of Philosophy in Physical education to Lakshmibai National Institute of Physical Education, Gwalior during the academic year 2022-23, is a bonafide record of original work carried out under the supervision of Prof. (Dr.) Mahendra Kumar Singh and has not been submitted in full or part to any other university or institute for a degree or diploma.

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ABSTRACT

In competitive sports, success depends not only on physical capabilities but also on emotional and psychological strength. Basketball and handball, as high-intensity team sports, demand physical power, agility, coordination, and emotional control under pressure. Although psychological aspects are increasingly recognized in athletic performance, there is limited research that integrates emotional and physical factors to explain differences between achievers and non-achievers. This study aims to fill that gap by assessing and comparing selected emotional and physical variables among national-level basketball and handball players, categorized as achievers (finalists) and non-achievers. The study evaluates emotional variables, Perceived Stress, Resilience, Mental Toughness, Aggression, and Goal Orientation and physical variables, Explosive Strength, Arm Strength, Flexibility, Back Strength, and Shoulder Strength. It also aims to identify the predictors contributing to higher athletic achievement and examine sport-specific and cross-sport patterns. A cross-sectional comparative design will be employed, with a purposive sample of national-level players. Emotional variables will be assessed using standardized psychological tools with established reliability, while physical variables will be tested through field-based methods following validated protocols (e.g., vertical jump for explosive strength, dynamometer for back and shoulder strength). Uniform data collection conditions will minimize bias. Statistical analyses, including MANOVA, discriminant analysis, and correlation assessments, will be used to examine group differences and variable relationships. It is expected that achievers will exhibit higher resilience, mental toughness, and goal orientation, with lower perceived stress and aggression. Physically, they are likely to outperform non-achievers, particularly in explosive and back/shoulder strength. The study will provide valuable insights for coaches and sports professionals to design integrated training programs that support both emotional and physical development, contributing to a comprehensive model for athletic success.

Keywords: Emotional Variables, Physical Fitness, Team Sports Performance, Basketball and Handball Athletes, Achievement in Sports, Psychophysical Assessment

Chapter I

INTRODUCTION

In the realm of competitive sports, the distinction between achievers and Non Achievers often transcends mere physical attributes, extending into the complex domain of psychological and emotional variables (Laborde et al., 2016a). Basketball and handball, as dynamic team sports requiring diverse physical abilities and psychological resilience, provide an ideal context for investigating these multifaceted determinants of athletic success. The intricate interplay between emotional competencies and physical capabilities represents a frontier in sports science research that holds significant implications for talent identification, performance enhancement, and athletic development (Vaughan et al., 2019). Sports psychology research has consistently emphasized that elite performance emerges from the integration of physical prowess with psychological fortitude (Gucciardi et al., 2020). While the physical dimensions of athletic performance, such as strength, agility, and cardiovascular endurance have been extensively studied, the emotional variables that potentially differentiate high achievers from their peers have received comparatively less systematic attention, particularly in team sports like basketball and handball (Ghobadi et al., 2013). This research gap presents a compelling opportunity to advance our understanding of the holistic factors that contribute to sporting excellence. Basketball and handball share common demands as team-based invasion sports, including rapid decision-making, spatial awareness, explosive movements, and psychological resilience under competitive pressure (Wagner et al., 2016). However, they also exhibit distinct sport-specific requirements that may necessitate different emotional and physical attributes for optimal performance (Saavedra et al., 2018). By examining achievers and Non Achievers across both sports, this research aims to identify both universal and sport-specific factors that contribute to competitive success at the national level.

Emotional intelligence (EI), defined as the ability to perceive, understand, manage, and effectively utilize emotions, has emerged as a significant predictor of athletic performance across various sports (Kopp & Jekauc, 2018). Research by Crombie et al., (2009) demonstrated that emotional intelligence scores were significantly higher among elite cricket players compared to their sub-elite counterparts, suggesting that emotional competencies may serve as discriminating factors between achievement levels. Similarly, Laborde et al., (2016)found that emotional intelligence positively correlated with performance outcomes among competitive

handball players, particularly in high-pressure situations. The capacity to regulate emotions during competition represents another crucial psychological variable that potentially differentiates achievers from Non Achievers. Effective emotional regulation enables athletes to maintain optimal arousal levels, focus attention appropriately, and make sound tactical decisions under pressure (Wagstaff, 2014). A meta-analysis by Campo et al., (2016) revealed that emotion regulation strategies such as cognitive reappraisal and mindfulness were consistently associated with enhanced performance across diverse sports, including basketball. Moreover, Tamminen & Crocker, (2013) observed that national-level basketball players employed more sophisticated emotion regulation strategies compared to regional-level players, highlighting the potential role of emotional regulation in athletic achievement. Motivation orientation, whether predominantly task-oriented or ego-oriented, constitutes another emotional variable with implications for athletic achievement. Task-oriented athletes focus on personal improvement and mastery, while ego-oriented athletes primarily measure success through comparison with others (Jowett & Cockerill, 2003). Research by Lochbaum et al., (2016) indicated that although both orientations can drive performance, task orientation more consistently predicted long-term achievement and persistence in basketball players. This finding suggests that the nature of motivational structures, rather than merely motivation intensity, may differentiate achievers from Non Achievers. Competitive anxiety management represents a further critical emotional variable in athletic performance. While moderate anxiety can enhance performance through increased arousal and attention, excessive anxiety often impairs performance by disrupting concentration and coordination (Patel et al., 2010). Meggs et al., (2019) found that elite handball players demonstrated more effective anxiety management strategies and lower debilitative anxiety compared to non-elite players. These findings highlight anxiety management as a potential discriminating factor between achievement levels in team sports. Mental toughness, conceptualized as psychological resilience and determination in the face of adversity, has been consistently linked to superior athletic performance (R. G. Cowden, 2017). A longitudinal study by Gucciardi et al., (2020) demonstrated that mental toughness predicted achievement level in team sport athletes over a three-year period, suggesting its role as both a prerequisite for and consequence of athletic success. Furthermore, Cowden et al., (2020) found that mental toughness differentiated between national and regional level basketball players, emphasizing its potential as a discriminating factor between achievers and Non Achievers.

Emotional variables constitute a central focus of this research, physical attributes remain fundamental determinants of sports performance that must be considered in any comprehensive analysis of athletic achievement. Anthropometric characteristics such as height, weight, body composition, and limb length have been associated with performance in both basketball and handball (Chaabene et al., 2017). Research by Torres-Unda et al., (2015) demonstrated that elite youth basketball players exhibited distinct anthropometric profiles compared to non-elite players, with differences in height, wingspan, and body composition emerging as significant discriminating factors. Basic motor abilities including strength, speed, agility, and endurance represent essential physical variables that potentially differentiate achievers from Non Achievers in basketball and handball. A comprehensive study by Ziv & Lidor, (2009) revealed that vertical jump performance, indicative of lower-body explosive strength, consistently distinguished between elite and sub-elite basketball players across age categories. Similarly, Wagner et al., (2016) identified maximal aerobic capacity and intermittent endurance as significant predictors of achievement level in handball players, highlighting the multifaceted nature of physical demands in these sports. Sport-specific technical skills constitute another category of physical variables with clear implications for athletic achievement. Okazaki & Rodacki, (2012) demonstrated that shooting accuracy and efficiency differentiated between professional and amateur basketball players, while Saavedra et al., (2018) found that throwing velocity and accuracy were significantly higher among elite handball players compared to their sub-elite counterparts. These findings underscore the importance of sport-specific technical proficiency alongside general physical capabilities. The integration of physical capabilities through coordination and movement efficiency represents a higher-order physical variable that may differentiate achievers from Non Achievers. Research by Asadi et al., (2016) revealed that elite basketball players demonstrated superior movement economy during sport-specific tasks compared to non-elite players, suggesting that efficient integration of physical capabilities may be as important as the magnitude of individual capacities.

Emotional and physical variables have traditionally been studied as separate domains, contemporary research increasingly recognizes their interdependence and mutual influence (Vaughan et al., 2019). Emotional states can significantly impact physical performance through various mechanisms, including changes in muscle tension, motor coordination, decision-making, and energy utilization (Morales et al., 2013). Conversely, physical capabilities and states influence emotional experiences, as demonstrated by research showing that fatigue can impair emotional regulation capabilities (Ferioli et al., 2018). The relationship between

emotional and physical variables appears particularly pronounced in team sports like basketball and handball, where rapid decision-making under physical and psychological pressure is required (Crombie et al., 2009b). Research by Arribas-Galarraga et al., (2017) demonstrated that the correlation between emotional intelligence and game performance in basketball players was moderated by physical fitness levels, suggesting complex interactions between these variable domains. Similarly, Debien et al., (2018) found that handball players' physiological responses to training loads were influenced by their psychological profiles, indicating bidirectional relationships between emotional and physical factors. The concept of psychophysiological coherence offers a theoretical framework for understanding how optimal integration of emotional and physical variables may characterize high achievers in sports (Laborde et al., 2018). This perspective suggests that peak performance emerges when psychological and physiological systems operate in synchronized patterns that maximize resource efficiency and responsiveness. Research by Morgan et al., (2019) provided preliminary evidence that national-level team sport athletes exhibited greater psychophysiological coherence during competitive scenarios compared to regional-level athletes.

Statement of the problem

The problem of the study stated as **"Assessment and Comparison of Varied Emotional and Physical Variables of Selected National Level Basketball and Handball Achievers and Non Achievers".**

Objectives of the study

The research work will be carried out with the following objectives in perspective:

- To explore the current status of selected National level Basketball and Handball sports person in their level of Perceived Stress, Resilience, Mental Toughness, Aggression and Goal Orientation.
- To explore the current status of selected National level Basketball and Handball sports person in their level of Explosive Strength, Arm Strength, Flexibility, Back Strength and Shoulder Strength.

Hypothesis

H_0: There would be no significance difference among national level Basketball Achievers and Non Achievers on Perceived Stress, Resilience, Mental Toughness, Aggression, and Goal Orientation.

H_0: There would be no significance difference among national level Basketball Achievers and Non Achievers on Explosive Strength, Arm Strength, Flexibility, Back Strength and Shoulder Strength.

H_0: There would be no significance difference among national level Handball Achievers and Non Achievers on Perceived Stress, Resilience, Mental Toughness, Aggression, and Goal Orientation.

H_0: There would be no significance difference among national level Handball Achievers and Non Achievers on Explosive Strength, Arm Strength, Flexibility, Back Strength and Shoulder Strength.

Delimitations

- This study will be delimited to the subject's age belonging to 18-25 years.
- This study will be confined to 100 Basketball and 100 Handball male players only. Out of the 100 Basketball players, 50 will be achievers and 50 will be Non Achievers. Similarly, out of the 100 Handball players, 50 will be achievers and 50 will be Non Achievers.
- This study will be confined to the National Level (Senior National, Khelo India University Level and All India Inter University Level) players only.
- The study will be delimited to the selected emotional variables which are as follows:
    - Perceived Stress
    - Resilience
    - Mental toughness
    - Aggression
    - Goal orientation

The study will be delimited to the selected physical variables which are as follows:

- Explosive Strength
- Arm strength

- Flexibility
- Back Strength
- Shoulder Strength

Limitations

- Sustaining concentration: Restlessness, shortened span, and difficulty in understanding or remembering verbal directions by the players.
- Screening out environmental stimuli: An inability to block out sounds, sights or odors that interfere with focusing on tasks by the players.
- Fear of authority figures: Difficulty approaching with researcher.
- Lifestyle: The researcher will be unable to control the lifestyle of the athletes.

Definition and explanation of the terms

Emotional Variables

Perceived Stress

Perceived stress refers to the degree to which situations in one's life are appraised as stressful. It represents a subjective evaluation of the extent to which demands exceed an individual's ability to cope (Cohen et al., 1983).

Resilience

Resilience is the process of adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress. It involves "bouncing back" from difficult experiences and often involves personal growth (American Psychological Association, 2020).

Mental toughness

Mental toughness is a personality trait characterized by the capacity to cope with various stressors, challenges, and pressure while maintaining performance, focus, and confidence regardless of circumstances (Clough, 2002).

Aggression

Aggression refers to behavior directed toward another individual with the proximate intent to cause harm, where the perpetrator believes the behavior will harm the target, and the target is motivated to avoid the behavior (Anderson & Bushman, 2002).

Goal orientation

Goal orientation refers to the purposes or reasons an individual pursues achievement situations and the way they approach, engage with, and respond to these activities (Ames, 1992; Dweck, 1986).

Physical Variables

Explosive strength

Explosive strength (also known as power) is the ability to exert maximum force in minimum time. It combines elements of both strength and speed, enabling rapid force production during dynamic movements (Zatsiorsky & Kraemer, 2006).

Arm strength

Arm strength refers to the force-generating capacity of the muscles in the upper extremities, including the biceps, triceps, forearm muscles, and supporting musculature of the shoulder girdle (Knuttgen & Kraemer, 1987; Komi, 2003).

Flexibility

Flexibility is the range of motion available at a joint or series of joints, determined by the extensibility of muscles, tendons, ligaments, and other soft tissues (Alter, 2004).

Back strength

Back strength primarily refers to the force-generating capacity of the muscles supporting the spine, including the erector spinae, multifidus, latissimus dorsi, and another core musculature (Heyward & Gibson, 2014; McGill, 2015).

Shoulder strength

Shoulder strength refers to the force-generating capacity of the muscles surrounding the shoulder complex, including the deltoids, rotator cuff muscles (supraspinatus, infraspinatus, teres minor, subscapularis), and scapular stabilizers (Reinold & Gill, 2010; Wilk et al., 2009).

Significance of the study

- The findings of the study will be added to the existing knowledge in the area and will be beneficial for the players, coaches and researchers for getting feedback.

- The study will be helpful for the self-assessment in terms of selected emotional and physical variables of the players.
- The study will be helpful to the players to fix realistic goal during competition.
- The results of the study will be further helpful to determine the role of these selected emotional and physical variables with the performance.
- The study will be thrown new light in the field of sports psychology for further research.

Chapter- II

REVIEW OF RELATED LITERATURE

Aslan, (2019) conducted a study to investigate the effect of sports participation on perceived stress level in deaf adolescents and young adults. A total of 110 deaf people aged between 14 and 25 years participated in the study. The Turkish version of the Perceived Stress Scale (PSS) was used to assess perceived stress level of the participants. The scale is a 5-item Likert scale and 10-item scale. The scores of PSS-10 consist of 0-40.44 (40.0%) of the participants were female and 66 (60.0%) were male. The mean age of female participants was 16, 66 ± 1, 36 years and male participants were 17, 74 ± 1, 65 years. Of the participants, 85 (77.3%) had antenatal and 25 (22.7%) had post-partum hearing impairment. Of the participants, 67 (60.9%) did participate sports and 43 (39.1%) did not participate in sports. No statistically significant difference was found in terms of sex, hearing disability level and having congenital or acquired disability (p> 0.05). The total score of PSS of the athletes were 22, 33 ± 6, 33 and the total score of the non-athletes were 26, 74 ± 3, 46. There was a statistically significant difference between the groups (p < 0.05). However, no statistically significant difference was found in terms of gender, the grades of hearing disability, and having congenital or acquired disability (p> 0.05). The results of our study showed that the perceived stress levels of deaf adolescents and young adults who participate in sports were lower than compared who did not participate in sports. This study demonstrated sports participation might recommend to adolescents and young adults with hearing impairment for reducing stress.

Onturk et al., (2020) the aim of this research is to examine the psychological resilience levels of students studying in the Faculty of Sports Sciences according to some variables. The sample of the study consisted of Sports Sciences Faculty students of Duzce University, and the population consisted of 200 students from the Sports Sciences Faculty selected through a convenience sampling method. An eight-item personal information form developed by the researcher for demographic characteristics and ''Short form of resilience scale'' to determine resilience levels of participants were used. According to data obtained, while resilience levels, grades, gender, branch, department, age, and income variables of participants did not show a significant difference (p>0,05), it showed a significant difference according to sports age and place of living variables (p<0,05). Besides it was determined that resilience scores of male participants were higher than females, and team athletes had higher scores than individual athletes, lower classes had higher scores than upper classes, sports management students had

higher scores than coaching and physical education and sports teaching students, and students who had younger age had higher scores than students who had older age. As a result of research, it was determined that resilience could be differed by class, sports age, residence variables. Also, it was revealed that sports age affects resilience negatively.

Collison, (2020) conducted this study to evaluate the potential mediating role of basic traits in the relation between personality disorder (PD) symptoms and outcomes related to aggression and antisocial behavior. A total of 307 participants, recruited from Amazon Mechanical Turk (MTurk), completed a number of questionnaires assessing personality traits, PD symptoms, and various types of aggressive and antisocial behavior. Findings suggest that traits related to Agreeableness and Conscientiousness generally demonstrated the strongest and most consistent (negative) relations across all measures of aggression and antisocial behavior; however, Neuroticism-related traits also demonstrated moderate (positive) correlations with certain types of aggression. PD symptoms almost all predicted aggressive and antisocial behavior, and although ASPD and BPD were two of the most robust PD symptom correlates across aggression and antisocial behavior outcomes, they were not always the strongest PD symptom correlate for each behavior. Personality profiles were moderately similar across aggression subtypes, but some showed more convergence than others. Finally, relations between PD symptom counts and aggressive and antisocial behavior were largely accounted for by more basic personality traits.

(Jung et al., 2021) analysed the effect of motivation to participate in sports on achievement goal orientation and achievement behavior in high-school basketball players. The study included 256 female high-school basketball players from Busan, Korea, and was conducted between September and October 2020. The questionnaires obtained data regarding motivation to participate in sports, achievement goal orientation, and achievement behavior. Structural equation modelling was used for data analysis. Motivation to participate in sports exhibited a significant positive correlation with achievement goal orientation ($P<0.05$). Specifically, motivation related to the development of technical skills and achieving a sense of fulfilment, amusement, and health exerted a positive effect on task-goal orientation. Greater motivation related to technical skill development, attaining a sense of accomplishment, and improving health was associated with greater self-goal orientation. Additionally, achievement goal orientation exerted a significant positive effect on achievement behavior ($P<0.05$). Given the relative unpopularity of basketball in Korea, it is crucial for players to develop high achievement goal orientation and engage in real efforts to translate such motivation into action.

This goal- and achievement-oriented attitude should precede motivation for participating in basketball.

Dharmadi, (2022) examined the effect of wearing JWV on arm strength and running speed of junior martial arts athletes aged 9-15 years, totalling 20 people. This research was conducted for 6 weeks, 3-4 times per week and 50 minutes per day. Two groups were utilized, namely control group and experimental group using MANOVA analysis. The control group was treated with martial arts training using their own body weight and the experimental group was treated with martial arts training by wearing JWV weighing 650 grams - 1000 grams. The conclusions of the study are: 1) there was a difference in the effect of using JWV on arm strength (p 0,001 < 0,05), 2) there was a difference in the effect of using JWV on running speed (p 0,001 < 0,05), and 3) there was a difference in the effect of simultaneously using JWV and Non JWV on arm muscle strength and running speed in junior martial arts athletes (p 0,000 < 0,05). This research shows that the arm strength and running speed of junior martial arts athletes can be increased by using JWV. Trainers, sport teachers, parents, community, sports organizations, and leaders in the field of sports can be informed that the results of this research have a measurable benefit in increasing arm strength and running speed using the Junior Weight Vest (JWV). The application of JWV in other sports such as badminton, basketball, volleyball, tennis, and even swimming can be considered as a topic for further researches.

Chapter III

METHODOLOGY

Selection of Subjects

The subjects for this study will be selected from national-level basketball and handball players, specifically those who have competed at the Senior National, Khelo India University Level, and All India Inter University Level. A total of 200 players, comprising 100 basketball and 100 handball players, will be chosen using purposive sampling. These players will be categorized into two groups: achievers, consisting of athletes from the two finalist teams of each sport, and Non Achievers, representing teams that participated in the tournaments but did not reach the finals.

Selection of Variables

Psychological variables		
Sl. No.	**Variables**	**Tools**
I.	Perceived stress	Perceived Stress Scale (Cohen et al., 1988)
II.	Resilience	The Nicholson McBride Resilience Questionnaire (2020)
III.	Mental toughness	Sports Mental toughness questionnaire (Sheard, & van Wersch, 2009)
IV.	Aggression	Aggression Questionnaire (Buss & Perry, 1992)
V.	Goal orientation	Task and Ego Orientation in Sport Questionnaire (Duda and Nicholls (1989)

Physical variables		
Sl. No.	**Variables**	**Tools**
I.	Explosive Strength	Standing Broad Jump
II.	Arm strength	Grip Dynamometer
III.	Flexibility	Sit and Reach test
IV.	Back Strength	Back Dynamometer
V.	Shoulder Strength	Medicine ball Throw

Procedure for Data Collection

Data will be collected from 100 male basketball players, and 100 male handball players by administering emotional variables like perceived stress, resilience, mental toughness, aggression and goal orientation, as well as physical variables like explosive strength, Arm strength, flexibility, back strength and shoulder strength. The schedule of the data collection will be planned in such a way that the subjects' routines will not be disturbed. Information with respect to the collection of data and letters will be issued to coaches and terms authorities well in advance, and date-wise planning for data collection will be prepared for each team separately.

Statistical Technique

The collected data will first be screened for completeness and accuracy, followed by computation of descriptive statistics such as mean and standard deviation for each emotional and physical variable across groups. The assumptions of normality and homogeneity of variances will be tested using the Shapiro-Wilk test and Levene's test, respectively. In cases where these assumptions are violated, non-parametric alternatives like the Mann-Whitney U test or Kruskal-Wallis H test will be employed. To compare achievers and Non Achievers within each sport (basketball and handball), independent samples t-tests will be conducted, and Bonferroni correction will be applied to control the risk of Type I error due to multiple comparisons. To examine the interaction effects of achievement status (achievers vs. Non Achievers) and sport type (basketball vs. handball), a two-way ANOVA will be performed; if multiple interrelated dependent variables are present, MANOVA may be used to better understand multivariate group differences. Effect sizes, including Cohen's d for t-tests and eta-squared (η^2) for ANOVA, will be calculated to assess the practical significance of the findings. An a priori power analysis using G*Power 3.1 will be conducted to ensure sufficient sample size (power = 0.80, alpha = 0.05) for detecting medium to large effects. Graphical tools such as boxplots, bar graphs, and interaction plots will be used for visual representation of results. All statistical analyses will be carried out using IBM SPSS (Version 26), and significance will be set at $p < 0.05$.

Expected Outcome

It is anticipated that the achievers in both basketball and handball will exhibit significantly more favorable emotional profiles compared to Non Achievers. Specifically, achievers are expected to demonstrate higher levels of resilience, mental toughness, and goal orientation, reflecting their ability to cope with pressure, maintain focus, and stay committed to performance goals. Conversely, lower levels of perceived stress and maladaptive aggression are expected among achievers, indicating better emotional regulation and psychological preparedness in competitive scenarios. On the physical domain, it is expected that achievers will outperform Non Achievers across all five measured variables. Markedly higher scores are anticipated in explosive strength, shoulder strength, and back strength, given the biomechanical and strength demands typical of basketball and handball. Achievers are also likely to demonstrate superior arm strength and flexibility, although the extent may vary by sport, handball players may exhibit greater flexibility due to the dynamic movement patterns involved, while basketball players may show enhanced explosive power as indicated by vertical jump performance. The study may anticipate the emergence of sport-specific strengths, with basketball players possibly excelling more in explosive and vertical movement capabilities, and handball players displaying advantages in flexibility and upper body strength. Overall, emotional and physical variables are expected to interact in meaningful ways, contributing collectively to athletic achievement. These expected findings will help in identifying psychological and physiological predictors of success, supporting the development of integrated, evidence-based training and talent identification programs in team sports at the national level.

BIBLIOGRAPHY

Alter, M. J. (2004). *Science of Flexibility*. Human Kinetics.

American Psychological Association. (2020). *Resilience*. American Psychological Association. https://www.apa.org/topics/resilience

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, *84*(3), 261–271. https://doi.org/10.1037/0022-0663.84.3.261

Anderson, C. A., & Bushman, B. J. (2002). Human Aggression. *Annual Review of Psychology*, *53*(1), 27–51. https://doi.org/10.1146/annurev.psych.53.100901.135231

Arribas-Galarraga, S., Saies, E., Cecchini, J. A., Arruza, J. A., & Luis-De-Cos, I. (2017). The relationship between emotional intelligence, self-determined motivation and performance in canoeists. *Journal of Human Sport and Exercise*, *12*(3). https://doi.org/10.14198/jhse.2017.123.07

Asadi, A., Arazi, H., Young, W. B., & Sáez de Villarreal, E. (2016). The Effects of Plyometric Training on Change-of-Direction Ability: A Meta-Analysis. *International Journal of Sports Physiology and Performance*, *11*(5), 563–573. https://doi.org/10.1123/ijspp.2015-0694

Aslan, S. (2019). Perceived Stress Level and Sports Participation in Deaf Adolescents and Young Adults. *Journal of Education and Training Studies*, *7*(3), 197. https://doi.org/10.11114/jets.v7i3.3974

Campo, M., Laborde, S., & Mosley, E. (2016). Emotional intelligence training in team sports: The influence of a season long intervention program on trait emotional intelligence. *Journal of Individual Differences*, *37*(3), 152–158. https://doi.org/10.1027/1614-0001/a000201

Chaabene, H., Negra, Y., Bouguezzi, R., Mkaouer, B., Franchini, E., Julio, U., & Hachana, Y. (2017). Physical and Physiological Attributes of Wrestlers: An Update. *Journal of Strength and Conditioning Research*, *31*(5), 1411–1442. https://doi.org/10.1519/JSC.0000000000001738

Clough, P. J. (2002). *Mental toughness: The concept and its measurement | Request PDF*. ResearchGate. https://www.researchgate.net/publication/313119986_Mental_toughness_The_concept_and_its_measurement

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*(4), 385–396. https://doi.org/10.2307/2136404

Collison, K. L. (2020). *Personality Traits, Personality Disorders, and Aggression: A Comparison of Intimate Partner vs. Non-Intimate Partner Aggression*. 406739 Bytes. https://doi.org/10.25394/PGS.12340514.V1

Cowden, R., Crust, L., Tibbert, S., & Jackman, P. (2020). *Mental toughness development and training in sport*. https://doi.org/10.4324/9780429025112-4

Cowden, R. G. (2017). Mental Toughness and Success in Sport: A Review and Prospect. *The Open Sports Sciences Journal*, *10*(1), 1–14. https://doi.org/10.2174/1875399X01710010001

Crombie, D., Lombard, C., & Noakes, T. (2009a). Emotional Intelligence Scores Predict Team Sports Performance in a National Cricket Competition. *International Journal of Sports Science & Coaching*, *4*(2), 209–224. https://doi.org/10.1260/174795409788549544

Crombie, D., Lombard, C., & Noakes, T. (2009b). Emotional Intelligence Scores Predict Team Sports Performance in a National Cricket Competition. *International Journal of Sports Science & Coaching*, *4*(2), 209–224. https://doi.org/10.1260/174795409788549544

Debien, P. B., Mancini, M., Coimbra, D. R., de Freitas, D. G. S., Miranda, R., & Bara Filho, M. G. (2018). Monitoring Training Load, Recovery, and Performance of Brazilian Professional Volleyball Players During a Season. *International Journal of Sports Physiology and Performance*, *13*(9), 1182–1189. https://doi.org/10.1123/ijspp.2017-0504

Dharmadi, M. A. (2022). The Effects of 6-Week Training with Junior Weight Vest (JWV) for Arm Strength and Running Speed in Junior Martial Arts Athletes. *International Journal of Human Movement and Sports Sciences*, *10*(6), 1107–1114. https://doi.org/10.13189/saj.2022.100601

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, *41*(10), 1040–1048. https://doi.org/10.1037/0003-066X.41.10.1040

Ferioli, D., Bosio, A., La Torre, A., Carlomagno, D., Connolly, D. R., & Rampinini, E. (2018). Different Training Loads Partially Influence Physiological Responses to the Preparation Period in Basketball. *Journal of Strength and Conditioning Research*, *32*(3), 790–797. https://doi.org/10.1519/JSC.0000000000001823

Ghobadi, H., Rajabi, H., Farzad, B., Bayati, M., & Jeffreys, I. (2013). Anthropometry of World-Class Elite Handball Players According to the Playing Position: Reports From Men's

Handball World Championship 2013. *Journal of Human Kinetics*, *39*, 213–220. https://doi.org/10.2478/hukin-2013-0084

Gucciardi, F., Lines, R., Ducker, K., Peeling, P., Chapman, M., & Temby, P. (2020). Mental Toughness as a Psychological Determinant of Behavioral Perseverance in Special Forces Selection. *Sport, Exercise, and Performance Psychology*, *10*, 164–175. https://doi.org/10.1037/spy0000208

Heyward, V. H., & Gibson, A. (2014). *Advanced Fitness Assessment and Exercise Prescription 7th Edition*. Human Kinetics.

Jowett, S., & Cockerill, I. M. (2003). Olympic medallists' perspective of the althlete–coach relationship. *Psychology of Sport and Exercise*, *4*(4), 313–331. https://doi.org/10.1016/S1469-0292(02)00011-0

Jung, Y.-S., Kang, H., & Jang, S. (2021). The Effects of High School Basketball Player's Sports Participa-tion Motivation on Achievement Goal Orientation and Achieve-ment Behaviors. *Iranian Journal of Public Health*. https://doi.org/10.18502/ijph.v50i10.7495

Knuttgen, H. G., & Kraemer, W. J. (1987). Terminology and Measurement in Exercise Performance: *Journal of Strength and Conditioning Research*, *1*(1), 1–10. https://doi.org/10.1519/00124278-198702000-00001

Komi, P. V. (Ed.). (2003). *Strength and Power in Sport* (1st ed.). Wiley. https://doi.org/10.1002/9780470757215

Kopp, A., & Jekauc, D. (2018). The Influence of Emotional Intelligence on Performance in Competitive Sports: A Meta-Analytical Investigation. *Sports (Basel, Switzerland)*, *6*(4), 175. https://doi.org/10.3390/sports6040175

Laborde, S., Dosseville, F., & Allen, M. S. (2016a). Emotional intelligence in sport and exercise: A systematic review. *Scandinavian Journal of Medicine & Science in Sports*, *26*(8), 862–874. https://doi.org/10.1111/sms.12510

Laborde, S., Dosseville, F., & Allen, M. S. (2016b). Emotional intelligence in sport and exercise: A systematic review. *Scandinavian Journal of Medicine & Science in Sports*, *26*(8), 862–874. https://doi.org/10.1111/sms.12510

Laborde, S., Mosley, E., & Mertgen, A. (2018). Vagal Tank Theory: The Three Rs of Cardiac Vagal Control Functioning - Resting, Reactivity, and Recovery. *Frontiers in Neuroscience*, *12*, 458. https://doi.org/10.3389/fnins.2018.00458

Lochbaum, M., Çetinkalp, Z. K., Graham, K.-A., Wright, T., & Zazo, R. (2016). Task and ego goal orientations in competitive sport: A quantitative review of the literature from 1989 to 2016. *Kinesiology*, *48*(1), 3–29.

McGill, S. (2015). *Low Back Disorders: Evidence-Based Prevention and Rehabilitation*. Human Kinetics.

Meggs, J., Chen, M. A., & Koehn, S. (2019). Relationships Between Flow, Mental Toughness, and Subjective Performance Perception in Various Triathletes. *Perceptual and Motor Skills*, *126*(2), 241–252. https://doi.org/10.1177/0031512518803203

Morales, J., Garcia, V., García-Massó, X., Salvá, P., Escobar, R., & Buscà, B. (2013). The use of heart rate variability in assessing precompetitive stress in high-standard judo athletes. *International Journal of Sports Medicine*, *34*(2), 144–151. https://doi.org/10.1055/s-0032-1323719

Morgan, P. B. C., Fletcher, D., & Sarkar, M. (2019). Developing team resilience: A season-long study of psychosocial enablers and strategies in a high-level sports team. *Psychology of Sport and Exercise*, *45*, 101543. https://doi.org/10.1016/j.psychsport.2019.101543

Okazaki, V. H. A., & Rodacki, A. L. F. (2012). Increased distance of shooting on basketball jump shot. *Journal of Sports Science & Medicine*, *11*(2), 231–237.

Onturk, Y., Efek, E., & Yildiz, M. (2020). Investigating the Psychological Resilience of Students in Sports Sciences Faculty. *International Journal of Educational Methodology*, *6*(2), 393–403. https://doi.org/10.12973/ijem.6.2.393

Patel, D. R., Omar, H., & Terry, M. (2010). Sport-related performance anxiety in young female athletes. *Journal of Pediatric and Adolescent Gynecology*, *23*(6), 325–335. https://doi.org/10.1016/j.jpag.2010.04.004

Reinold, M. M., & Gill, T. J. (2010). Current concepts in the evaluation and treatment of the shoulder in overhead-throwing athletes, part 1: Physical characteristics and clinical examination. *Sports Health*, *2*(1), 39–50. https://doi.org/10.1177/1941738109338548

Saavedra, J. M., Kristjánsdóttir, H., Einarsson, I. Þ., Guðmundsdóttir, M. L., Þorgeirsson, S., & Stefansson, A. (2018). Anthropometric Characteristics, Physical Fitness, and Throwing Velocity in Elite women's Handball Teams. *Journal of Strength and Conditioning Research*, *32*(8), 2294–2301. https://doi.org/10.1519/JSC.0000000000002412

Tamminen, K. A., & Crocker, P. R. E. (2013). "I control my own emotions for the sake of the team": Emotional self-regulation and interpersonal emotion regulation among female

high-performance curlers. *Psychology of Sport and Exercise*, *14*(5), 737–747. https://doi.org/10.1016/j.psychsport.2013.05.002

Torres-Unda, J., Zarrazquin, I., Gravina, L., Zubero Linaza, J., Seco, J., Gil, S., Gil, J., & Irazusta, J. (2015). Basketball Performance Is Related to Maturity and Relative Age in Elite Adolescent Players. *Journal of Strength and Conditioning Research / National Strength & Conditioning Association*, *30*. https://doi.org/10.1519/JSC.0000000000001224

Vaughan, R., Laborde, S., & McConville, C. (2019). The effect of athletic expertise and trait emotional intelligence on decision-making. *European Journal of Sport Science*, *19*(2), 225–233. https://doi.org/10.1080/17461391.2018.1510037

Wagner, H., Orwat, M., Hinz, M., Pfusterschmied, J., Bacharach, D. W., von Duvillard, S. P., & Müller, E. (2016). Testing Game-Based Performance in Team-Handball. *Journal of Strength and Conditioning Research*, *30*(10), 2794–2801. https://doi.org/10.1519/JSC.0000000000000580

Wagstaff, C. R. D. (2014). Emotion regulation and sport performance. *Journal of Sport & Exercise Psychology*, *36*(4), 401–412. https://doi.org/10.1123/jsep.2013-0257

Wilk, K. E., Reinold, M. M., & Andrews, J. R. (2009). *The athlete's shoulder* (2nd ed). Churchill Livingstone/Elsevier.

Zatsiorsky, V. M., & Kraemer, W. J. (2006). *Science and Practice of Strength Training*. Human Kinetics.

Ziv, G., & Lidor, R. (2009). Physical characteristics, physiological attributes, and on-court performances of handball players: A review. *European Journal of Sport Science - EUR J SPORT SCI*, *9*, 375–386. https://doi.org/10.1080/17461390903038470